Online Resource 1

Interactive Virtual Case Example

Case #1 – Emergency Department Procedural Sedation and Complications During COVID-19 Pandemic

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Interactive Virtual Cases for Emergency Medicine Physicians During the COVID-19 Pandemic

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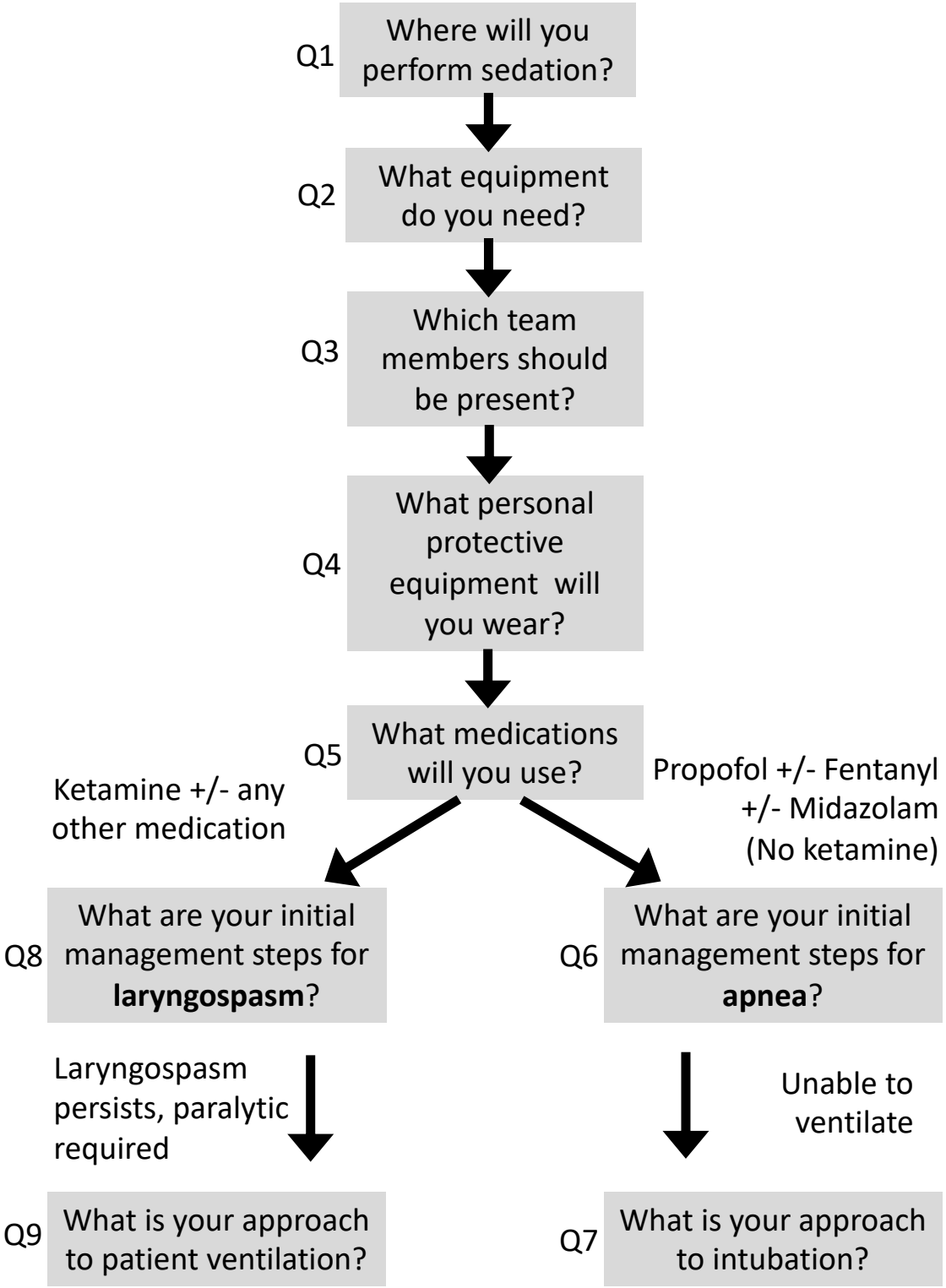
Case Description: Emergency department patient with distal radius fracture requiring sedation for reduction during COVID-19 pandemic.

Objectives

1) Formulate a sedation plan for a patient with no COVID-19 symptoms or risk factors.
2) Respond to sedation complications using current COVID-19 guidelines with respect to aerosol generating medical procedures.
3) Compare management strategies with colleagues and revise your approach to procedural sedation during COVID-19 pandemic.

FLOW DIAGRAM OF INTERACTIVE VIRTUAL CASE



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Default Question Block

A 53 year old female presents to the Victoria Hospital Emergency Department with a right wrist injury. The injury occurred as she was putting up a heavy wooden fence. The gate was blown towards her by a strong wind and struck her outstretched hand. She screened negative for COVID-19 risk factors and symptoms and has been placed in a front bubble bed.

PMHx: healthy
Meds: vitamins
Allergies: none

After a complete history and physical exam the only injury of concern is to the right wrist (see X-ray images). The wrist is neurovascularly intact.

Your attempted hematoma block does not provide adequate pain control to perform the reduction. You choose to sedate the patient.

Airway assessment: Mallampati 1, full neck range of motion, normal thyromental distance, normal body mass index.

(Insert X-ray images of distal radius fracture)

Where would you like to perform the sedation & wrist reduction?

- ○ Patient's current room in the front bubble 'warm zone'
- ○ Resuscitation/trauma bay
- ○ Negative pressure isolation room
- ○ 'Hot zone' (ie Rapid assessment zone at Victoria Hospital)
- ○ Private 'warm zone' room (C-Exam Rooms at Victoria Hospital)

Aside from your usual procedural sedation equipment used before the pandemic, what equipment would you request to have available or set-up at the bedside?

What team members would you like to have present for the sedation & reduction? (select all that apply)

- [ ] Off-service resident (working with you and who initially assessed the patient)
- [ ] Nurse
- [ ] Second Nurse
- [ ] Respiratory Therapist
- [ ] Emergency Department Technician
- [ ] Second staff physician

What personal protective equipment (PPE) do you recommend for you and your team members in the room?

- ○ Surgical mask with eye shield only
- ○ Full droplet/contact precautions
- ○ Droplet/contact gown with N95 mask and eye protection/shield
- ○ Full airborne precautions for potential aerosol generating medical procedure

What medication(s) will you administer for sedation? (may select multiple answers)

- [ ] Propofol
- [ ] Ketamine
- [ ] Midazolam
- [ ] Fentanyl

As you are performing the reduction the nurse alerts you that the patient has become apneic and despite being on 6L nasal prongs their oxygen saturation is beginning to fall. A jaw thrust is performed, however they remain apneic. Oxygen saturation is falling, but currently at 90%. Your medication is unlikely to wear off as you just gave another dose.

How would you like to proceed? (may select multiple answers)

- [ ] Continue reduction as pain will likely simulate breathing
- [ ] Maximize oxygen flow rate through nasal prongs (>15L)
- [ ] Apply Flo2Max non-rebreather mask
- [ ] Insert oral airway
- [ ] Begin bag-valve-mask (BVM) ventilation
- [ ] Insert supraglottic airway (LMA) and ventilate
- [ ] Ensure everyone in room is wearing an N95 masks & face shield PRIOR to performing selected airway management manoeuvres
- [ ] Ensure you are in a negative pressure room PRIOR to performing selected airway management manoeuvres
- [ ] Transfer to a negative pressure room (if not already in one) WHILE simultaneously beginning selected airway management manoeuvres

☐ Other Thoughts?

Despite your best efforts to manage this patient's apnea and hypoxia they are quite difficult to ventilate and you believe emergent intubation is required.
Please outline your plan with a focus on the following: current location in emergency department, PPE, who is intubating, what equipment will be used.

As you are performing the reduction the patient develops stridor. You suspect laryngospasm. Despite being on 6L nasal prongs their oxygen saturation is beginning to fall. A jaw thrust is performed and pressure is applied to Larson's point, however the laryngospasm persists. Oxygen saturation is falling, but currently at 90%.
How would you like to proceed? (may select multiple answers)

☐ Continue reduction as pain will likely simulate breathing

- [ ] Release and repeat jaw thrust & pressure to Larson's point
- [ ] Suction the oropharynx
- [ ] Maximize oxygen flow rate through nasal prongs (>15L)
- [ ] Apply Flo2Max non-rebreather mask
- [ ] Insert oral airway
- [ ] Begin bag-valve-mask (BVM) ventilation
- [ ] Insert supraglottic airway (LMA) and ventilate
- [ ] Administer propofol
- [ ] Ensure everyone in room is wearing an N95 masks & face shield PRIOR to performing selected airway management manoeuvres
- [ ] Ensure you are in a negative pressure room PRIOR to performing selected airway management manoeuvres
- [ ] Transfer to a negative pressure room (if not already in one) WHILE simultaneously beginning selected airway management manoeuvres
- [ ] Other Thoughts?

Despite your best efforts the patient remains in laryngospasm. You believe that a paralytic is required. You administer a paralytic agent and the laryngospasm resolves.

What is your next step?

- ○ Ventilate using BVM until paralytic wears off
- ○ Insert LMA and bag until paralytic wears off
- ○ Intubate the patient immediately yourself
- ○ Ventilate using BVM until intubation team arrives

- ○ Insert LMA and bag until intubation team arrives

Do you plan on attending the virtual simulation debrief on Monday, May 11 at noon?

- ○ Yes
- ○ No
- ○ Maybe

Please click here to provide your email address to receive debrief meeting details.